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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/656,057
Filing Date: September 05, 2003
Appellant(s): STEELE, RONALD E.

Christina W. Geerlof
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 27 July 2009 appealing from the Office action mailed 25 February 2009.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board’s decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant’s statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,235,390 B1	Schwinn, Glenn A. et al.	05-2001
4,034,034	Eberius, Wiprecht et al.	07-1977

Fourné, Franz, Synthetic Fibers, Chapter 4, page 359, C. Hanser Publishers, Munich 1998

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3, 5, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schwinn (US Patent No. 6,235,390).

With respect to Claims 1 and 6, Schwinn teaches a method of making a melt spun polyamide filament (abstract). Schwinn teaches supplying polyamide polymer to a solid phase polycondensation apparatus (SPP) (see col. 6, lines 61-64). The polymer is in the range of about 40 to about 60 relative viscosity (RV), and viewing Schwinn's RV value of about 40 as one significant digit, it necessarily reads on 35-45, which includes the claimed range of 36-38 RV (see col. 7, line 30). Moreover, by stating that suitable polymer RV value is provided if the RV is about 40, Schwinn directly teaches the use of a RV within Applicant's claimed range of 36-38 (see MPEP § 2144.05 I). Moreover, if the claimed ranges and prior art ranges were to not be considered to overlap via a limited interpretation of "about 40" to exclude 38, the claimed range of 36-38 and Schwinn teaching about 40 are close enough that one skilled in the art would have expected them to have the same properties (see MPEP § 2144.05 I). A nitrogen purge gas is supplied at 23-51 m^3/min. and polymer is supplied from 1460 to 1870 lb./hr. (see

col. 7, lines 56-59; col. 8, lines 36-40; and Table 1). The gas has a dew point of –20C to 20 C (see col. 8, line 66 through col. 9, line 1). Gas sent through the SPP vessel 16 to remove water is directed back into the SPP vessel at the inlet 24 to constitute 50% of purge gas (humidifying a purge gas with water vapor; treating a nitrogen-comprising purge gas with water vapor) (see col. 8, lines 56-60; col. 9, lines 15-21). The ratio of the flow rates ($^{\text{kg purge gas/hour}}/_{\text{kg polymer/hour}}$) is 1.9 to 5.5 (see calculations below), which reads on the claimed range of about 2 to about 3.

N_2 flow rate	Conversion	dimensional conversion	N_2 flow rate
(m^3/min)	1.185 kg/m^3 of N_2 at STP	60 min./hr.	kg./hr.
23	1.185	60	1635
51	1.185	60	3626

polymer mass flow	
lb./hr.	kg./hr.
1460	663
1660	754
1870	849

purge gas flow rate kg./hr.	polymer flow rate kg./hr.	mass flow ratio of purge gas to polymer
1635	663	2.5
3626	663	**5.5**
1635	754	2.2
3626	754	4.8
1635	849	**1.9**
3626	849	4.3

Schwinn teaches conveying the polymer to a melt extruder and extruding the melted polyamide polymer through a spinneret to form at least one continuous filament (see col. 16, lines 22-30).

Schwinn does not appear to explicitly teach that the solid phase polycondensation system pressure is within the claimed range (e.g., 110 to 120 kPascal). However, in this regard, Schwinn further teaches that a constant amount of gas per unit time is to be maintained with positive pressure in the SPP vessel (see col. 8, lines 27-33). As such, Schwinn obvious recognizes that the solid phase polycondensation system pressure is a result-effective variable. Since the solid phase polycondensation system pressure would be a result-effective variable, one of ordinary skill in the art would have obviously determined the optimum the solid phase polycondensation system pressure applied in the process of Schwinn through routine experimentation based upon maintaining the desired amount of gas flow and positive pressure in the SPP vessel.

Moreover, since the vessel is pressurized to only 2 psig (see col. 8, lines 27-33), the only additional pressure to atmospheric pressure would be the pressure to drive the gas through the flake (see col. 8, lines 27-33), which would be about 110-120 kPascal.

The examiner recognizes that all of the claimed effects and physical properties are not positively stated by the reference(s). Note however that the reference teaches all of the claimed ingredients, process steps and process conditions and thus, the claimed effects (filaments with a yarn RV of about 51-54) and physical properties would necessarily be achieved by carrying out the disclosed process. If it is applicants' position that this would not be the case: (1) evidence would need to be presented to support applicants' position; and (2) it would be the examiner's position that the application contains inadequate disclosure in that there is no teaching as to how to

obtain the claimed properties and effects by carrying out only these steps. Thus, Schwinn teaches the claimed process result of the filaments with a yarn RV of about 51-54 principally because it teaches the claimed ingredients and claimed process steps.

With respect to Claim 2, the filaments are quenched, which is a type of cooling, this quenching and cooling (see col. 13, lines 30-34).

With respect to Claim 3, the filament is coated with a spin finish, which reads on the broadly claimed “post-treating” (see col. 13, lines 30-34), and is wound around several rollers 178, 178, and 180 (see Fig. 4), which reads on the broadly claimed “winding”.

With respect to Claim 5, as previously described in Claim 1, Nitrogen is purge gas and a ratio of 1.9-5.5 is obtained, reading on the claimed range of 2-3.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schwinn (US Patent No. 6,235,390) as applied to claim 3 above, and further in view of Eberius (US Patent No. 4,034,034).

With respect to Claim 4, Schwinn teaches a process for making a synthetic melt spun polyamide filament as previously described.

Schwinn does not explicitly teach wiping the spinneret plate on the capillary exit side, in cycles, wherein each wiling cycle is separated by about 8 to about 12 hours.

Eberius teaches making a polyamide filament and wiping the spinneret in a cycle of 8 hours, which reads on the claimed range.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to wipe the spinneret as taught by Eberius in the process as taught

by Schwinn because drippings, deposits, and encrustations easily form on the spinneret, and to prevent disruptions to production and formation of expected package size (see Eberius, col. 1, lines 32-64 and col. 2, lines 62-69).

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schwinn (US Patent No. 6,235,390) as applied to claim 3 above, and further in view of Fourné (*Synthetic Fibers*, p. 359).

With respect to Claim 4, Schwinn teaches a process for making a synthetic melt spun polyamide filament as previously described.

Schwinn does not explicitly teach wiping the spinneret plate on the capillary exit side, in cycles, wherein each wiling cycle is separated by about 8 to about 12 hours.

Fourné teaching wiping the first 5-15 cm below the spinneret, which would include the spinneret, at regular intervals (cycle) to avoid monomer growth (first paragraph of section 4.7.5.1).

Schwinn in view of Fourné does not appear to explicitly teach that the wipe cycle frequency is within the claimed range (e.g., every 8-12 hours). However, in this regard, Fourné further teaches wiping at regular intervals to avoid monomer growth on the spinneret area (first paragraph of section 4.7.5.1). As such, Fourné obvious recognizes that the wipe cycle frequency is a result-effective variable. Since the wipe cycle frequency would be a result-effective variable, one of ordinary skill in the art would have obviously determined the optimum the wipe cycle frequency applied in the process of Schwinn in view of Fourné through routine experimentation based upon minimizing disruptive monomer build-up.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to wipe the spinneret as taught by Fourné in the process as taught by Schwinn in order to minimize disruptive monomer build-up.

(10) Response to Argument

In Appellant's arguments, section 7 I, page 4, Appellant argues that the relative viscosity (RV) of Schwinn's supplied polyamide polymer does not meet the claimed limitation of having an RV of 36 to 38. In response, the Examiner submits, as indicated above in section 9, that Schwinn's supplied polymer is in the range of about 40 to about 60 relative viscosity (RV), and viewing Schwinn's RV value of about 40 as one significant digit, it necessarily reads on 35-45, which includes the claimed range of 36-38 RV (see col. 7, line 30). Moreover, by stating that suitable polymer RV value is provided if the RV is about 40, Schwinn directly teaches the use of a RV within Applicant's claimed range of 36-38 (see MPEP § 2144.05 I). Moreover, if the claimed ranges and prior art ranges were to not be considered to overlap via a limited interpretation of "about 40" to exclude 38, the claimed range of 36-38 and Schwinn teaching about 40 are close enough that one skilled in the art would have expected them to have the same properties (see MPEP § 2144.05 I).

In Appellant's arguments, section 7 I, page 4, Appellant argues that the RV of Schwinn's processed polyamide polymer does not meet the claimed limitation of having an RV of about 51 to about 54. However, the Examiner notes that Appellant's claimed limitation pertains to the formed yarn RV rather than the formed flake RV. Thus, a comparison to Schwinn's formed flake RV is moot. Moreover, the Examiner notes that

since all of the claimed ingredients, process steps, and process conditions are taught, the claimed effects and physical properties would necessarily be achieved by carrying out the disclosed process, which would include achieving the claimed effect of yarn RV.

In Appellant's arguments, section 7 I, pages 4 and 5, Appellant argues that Schwinn fails to teach adding water vapor to the purge gas passing through the solid phase polycondensation apparatus (SPP). Specifically, Appellant argues that a purge gas picking up water as it passes through a vessel would not be considered humidified for its second pass through the vessel because this act of being humidified is an overgeneralization, taken out of context, and being done for the wrong purpose. In response, the Examiner relies upon Schwinn's purge gas being recirculated through the SPP vessel. Gas sent through the SPP vessel 16 to remove water is directed back into the SPP vessel at the inlet 24 to constitute 50% of purge gas (see col. 8, lines 56-60; col. 9, lines 15-21). Since the Examiner relies upon Schwinn for all that is taught, not merely teachings of some drying of purge gas, and the purge gas is humidified because:

- Gas sent through the SPP vessel 16 to remove water via extraction from the flakes in the SPP vessel is directed back into the SPP vessel at the inlet 24 to constitute 50% of purge gas (see col. 8, lines 56-60; col. 9, lines 15-21). This is acknowledged by Appellant in Appellant's arguments, section 7 I, page 5, in the first full non-bold type paragraph. After the purge gas has completed one pass through the SPP vessel in which it has picked up water but before the gas passes through inlet 24 again, it meets the claimed limitation of being a purge

gas humidified with water vapor. This teaching of humidifying the purge gas before it makes the second pass through inlet 24 meets the limitation of humidifying a purge gas with water vapor regardless of where the water vapor originated.

- As acknowledged by Appellant in Appellant's arguments, section 7 I, page 5, in the first full non-bold type paragraph, Schwinn's drying system 14 produces purge gas. This dry purge gas is mixed with a gas from the outlet 26 of the SPP vessel. Thus, the dry purge gas is humidified by the purge gas from a previous cycle through the SPP vessel.

Appellant's arguments appear to acknowledge the humidity added to the purge gas in Appellant's arguments, section 7 I, page 5, in the first full non-bold type paragraph. However, the Appellant's arguments suggest that the humidified purge gas may not be sufficiently humid to meet the claimed limitation of humidifying the purge gas with water vapor. Appellant further argues this point on in section 7 I, page 6, by arguing that Schwinn's purge gas has a dew point of no more than 20 °C, which Appellant interprets as avoiding water vapor. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., humidifying the purge gas beyond a specific quantity of moisture) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See In re Van Geuns, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Appellant’s arguments appear to acknowledge the humidity added to the purge gas in Appellant’s arguments, section 7 I, page 5, in the first full non-bold type paragraph. However, the arguments suggest that the second pass of purge gas, which has been humidified by the first pass through the SPP vessel, is moot because some treating occurs in the first pass of the purge gas through the SPP vessel. In response to applicant's argument that the references fail to show certain features of applicant’s invention, it is noted that the features upon which applicant relies (i.e., no treating of the polymer before humidifying the purge gas) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Moreover, it is improper to read a specific order of steps into method claims where, as a matter of logic or grammar, the language of the method claims did not impose a specific order on the performance of the method steps. See MPEP § 21101.01(II).

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner’s answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Patrick Butler/

Examiner, Art Unit 1791

Conferees:

/Christina Johnson/

Supervisory Patent Examiner, Art Unit 1791

Christina Johnson

/Anthony McFarlane/